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	EXAMINER
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ART UNIT	PAPER NUMBER
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ALGY TAMOSHUNAS
US PHILIPS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
580 WHITE PLAINS ROAD
TARRYTOWN NY 10591

26M2/0921

DATE MAILED: 09/21/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☑ This application has been examined   ☑ Responsive to communication filed on _12/28/94_   ☐ This action is made final.

A shortened statutory period for response to this action is set to expire ___3___ month(s), ___0___ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☑ Notice of References Cited by Examiner, PTO-892.
2. ☑ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☑ Claims _1-9_ are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☑ Claims _1-9_ are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☑ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings
   are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the
    examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received
    ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in
    accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

Part III   DETAILED ACTION

Drawings

1.   This application has been filed with informal drawings which are acceptable for examination purposes only. See attached form US-PTO for specific informalities. Formal drawings will be required when the application is allowed.

Specification

2.   The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3.   Claims 1-9 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 1, lines 4-5, "the encoded digital video signal bit stream" should be "an encoded digital video signal bit stream."

(b) Claim 1, line 6, "the signal bit stream" should be "the encoded digital video signal bit stream".

(c) Claim 1, line 11, "the bit stream" should be "the encoded digital video signal bit stream".

(d) Claim 2, line 3, "the bit rate of the frame" lacks proper antecedent basis and should be "a bit rate of the frame".

(e) Claim 4, line 3, "image" should be "images".

(f) Claim 5, lines 6-12, "the said" should be "said".

(g) Claim 5, line 8, "the bit-rate" should be "an encoder stage output bit-rate".

(h) Claim 8, line 3, "the instantaneous bit rate" lacks proper antecedent basis and should be "an instantaneous bit rate".

(i) Claim 8, line 4, "the bit density" lacks proper antecedent basis and should be "a bit density".

(j) Claim 8, line 5, "the said" should be "said".

(k) Claim 9, line 3, "the bit rate of the frame" lacks proper antecedent basis and should be "a bit rate of the frame".

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-2 and 5 rejected under 35 U.S.C. § 102(b) as being anticipated by Haskell et al.

Haskell discloses a method of compression for transmission
of an encoded digital video signal bit stream (Haskell:. column 3,
lines 10-25), comprising the steps of: detecting a first bit rate
of the encoded digital video signal bit stream (Haskell:
column 5, lines 1-10); sequentially writing the encoded digital
video signal bit stream into a buffer at said first bit rate
(Haskell: column 5, lines 5-10); deriving a second bit rate as a
percentage of the first bit rate, changes in which percentage are
inversely related to changes in the first bit rate (Haskell:
column 5, lines 30-55); and reading out the encoded digital video
signal bit stream from the buffer at the second bit rate
(Haskell: column 5, lines 55-62) as in claim 1.

Regarding claim 2, Haskell discloses that the second bit
rate can equal the first bit rate for a specified range of first
bit rate values (Haskell: column 5, lines 30-37) as in the claim.

Regarding claim 5, Haskell discloses a video signal
apparatus operable to encode a digital video signal for
transmission, the apparatus comprising: an encoder stage operable
to encode a received video signal according to a predetermined
coding scheme and to output the signal as a variable bit-rate
data stream (Haskell: column 3, lines 17-34); a buffer coupled to
receive said variable bit-rate data stream from the encoder and
arranged to output a data signal for transmission (Haskell:
column 5, lines 6-10); characterized by means operable to detect
the bit rate of the variable bit-rate data stream (Haskell:

column 5, lines 30-38), to derive a second bit-rate as a

percentage of the encoder stage output bit-rate, which percentage

changes in inverse relation to the changes of the encoder stage

output rate (Haskell: column 8, lines 20-51; column 9,

lines 7-45), and to control the buffer output data signal bit

rate as said second bit-rate (Haskell: column 9, lines 43-60) as

in claim 5.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. § 103 which forms
the basis for all obviousness rejections set forth in this Office
action:

> A patent may not be obtained though the invention is not
> identically disclosed or described as set forth in
> section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by
> the manner in which the invention was made.

> Subject matter developed by another person, which qualifies
> as prior art only under subsection (f) or (g) of section 102
> of this title, shall not preclude patentability under this
> section where the subject matter and the claimed invention
> were, at the time the invention was made, owned by the same
> person or subject to an obligation of assignment to the same
> person.

7.   Claims 3-4, and 6-9 are rejected under 35 U.S.C. § 103 as

being unpatentable over Haskell in view of Reininger et al.

Haskell has a majority of the features of claims as

discussed above in reference to independent claims 1 and 5.

However, the Haskell reference does not particular disclose the

use of the VBR encoder in a MPEG environment and the use of

successive groupings of frames of input video signals for

detection of the first bit rate for the derivation of the second

bit-rate as claimed. Reininger discloses the use of a

conventional VBR predictive encoder (Reininger: column 6,

lines 15-57) in which a first bit-rate is computed according to

successive groupings of frames (Reininger: column 5, lines 1-50)

for changing a quantization step size (Reininger: column 4,

lines 27-50). It would have been obvious to one of ordinary skill

in art to incorporate the Reininger teaching of a conventional

motion compensation predictive encoder into the Haskell apparatus

in order to conform to the MPEG standard (Reininger: column 2,

lines 28-47). The incorporation of the Reininger encoder with the

Haskell apparatus would utilize the computed first bit-rate,

particular to each frame type of a group of pictures (Reininger:

column 3, lines 5-55), as in place of the R_{req} input into the

Haskell rate control module (Haskell: column 5, lines 30-51) for

computing the second bit-rate R_i; and the output of the Haskell

encoder range controller (Haskell: column 5, lines 59-60) would

be input to the Reininger rate counter (Reininger: column 6,

lines 48-50) to determine the quantization step size in

accordance with the granted R_i. The Haskell apparatus, now

incorporating the Reininger motion compensation predictive

encoder in place of the disclosed Haskell encoder as explained

above, has all of the features of invention as in claims 3, 7, and 9.

Regarding claims 4 and 6, the Haskell apparatus, now incorporating the Reininger motion compensation predictive encoder in place of the disclosed Haskell encoder as explained above, has signals encoded according to the MPEG standard (Reininger: column 2, lines 28-66) as in the claims.

Regarding claim 8, the Haskell apparatus, now incorporating the Reininger motion compensation predictive encoder in place of the disclosed Haskell encoder as explained above, is characterized in that the instantaneous bit rate of the signal is inversely related to the bit density of an image frame N frame periods later where N is determined by said bit density (Reininger: column 4, lines 50-68; column 5, lines 1-35) as in the claim.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hang discloses an adaptive buffer/quantizer control for transform video coders. Murakami discloses an image coding system.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Rao whose telephone number is (703) 305-4813.

AVR
asr
September 11, 1995

SUPERVISORY PATENT EXAMINER
GROUP 2600